

**Thoughts on the Antidegradation Implementation Triggers in the 1999 IDEM
Proposal
July 28, 2003
Bill Beranek**

Below are my thoughts on implementation triggers from the Antidegradation Work Group discussion on Monday, July 21, 2003. We continued our attempt to focus discussion of the antidegradation to manageable policy issues. At this meeting we used the 1999 IDEM proposed language as a starting point.

I have tried to extract the points mentioned and lay them in a logical format based on the 1999 language.

I did ignore the distinction for Historical OSRW, since the work group is working on the presumption that this rule will follow SEA 431 and no longer have that category.

I. BCC

a) "new or increased loading of any BCC" for which a new, renewed or modified control document would be required either for point source or nonpoint source [2]

b) for the same circumstances for which new or increased loading triggers antideg in a), that loading is prohibited in an OSRW [3]

This is reasonable policy for BCCs that a discharger intentionally adds to the effluent and therefore has the option of altering the process to reduce or eliminate.

The challenge to this policy discussed in the work group is when the parameter is already in the ambient source water at concentrations near or above the standard. If the reasonable potential to exceed threshold is reached, a decision on a permit limit must be made. Mercury is an example, since the Indiana total mercury criterion is based on toxicity estimates for methyl mercury. Ambient concentrations often exceed the Indiana WQC.

a) Problem One: if a mercury permit limit is granted, a variance will likely be necessary. Can the variance procedure incorporate the antidegradation review?

b) Problem Two: is it reasonable to have an absolute prohibition of any such discharge of ambient water into ambient water because of the presence of mercury in the ambient water?

II. nonBCC

The permit limit for a proposed discharge is restricted to the lower of the WQBEL for a quarter or half of the design stream flow or Best Available Technology. The standards must be met in the stream at all times. Antideg is in addition to that.

A proposed discharge is considered to cause a significant lowering of quality (and therefore require an antidegradation demonstration) if all of the following conditions are met:

1. the new or increased parameter has a numeric criterion,

(proposal uses term "tier II criterion," which does not exist; the policy question is under what conditions should a "tier II value" used to calculate a permit limit (to be used until the correct criterion and permit limit are later developed) be also used to trigger antidegradation?)

2. a new or increased permit limit (mass or concentration) is proposed in a control document

(there is a question about including parameters that have no Reasonable Potential to Exceed but whose discharge is increasing in amounts that are a large proportion of the in-stream unused loading capacity)

3. the new or increased permit limit (mass or concentration) causes an increase in the parameter concentration in receiving water outside the mixing zone of the design stream flow *(an increased load but same or decreased effluent concentration as permit limit may not trigger antidegradation review; e.g. existing discharge to a zero flow stream)*

(this does not appear to be in dispute as a condition, but the implication of this is not clear; it needs computer modeling of the possible scenarios)

4. the proposed incremental permit limit increase

a) causes a 3 mg/L increase of calculated CBOD concentration in the receiving water outside the mixing zone *(this is intended as a simple way to project dissolved oxygen in the absence of using a site-specific calibrated D.O. model; although other factors are involved, the usual range of acceptable in-stream concentration of CBOD ranges from 10 ppm for slow moving streams to 25 ppm for high slope, high aeration streams; the proposed permit limit itself must, of course, meet the projected D.O. WQC in the stream)*

(OSRW – 1.5 mg/L increase)

b) is an increase mass of ammonia greater than 30% of unused loading capacity according to antidegradation formula *
(OSRW – 15% of unused loading capacity)

c) other nonBCCs

i) in Great Lakes System, mass greater than 10% of unused loading capacity (antidegradation formula*)

ii) outside Great Lakes System, mass greater than 15% of unused loading capacity (antidegradation formula*)

iii) in OSRW, any increase above zero

* the unused loading capacity in the antidegradation formula in this 1999 IDEM proposal is the capacity remaining in the design flow of the upstream water plus the proposed effluent flow after the existing load and existing background load are accounted for; the WQBEL calculation itself never permits the discharger to use up the actual "unused loading capacity" available.

Need to justify each of the trigger levels in some fashion. Need to estimate annual number and types of antidegradation situations given these trigger conditions.